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CODIB-D-82/25
20 December 1963

UNITED STATES INTELLIGENCE BOARD

COMMITTEE ON DOCUMENTATION

Stage I Report of the Staff for the Community Information Processing Study (SCIPS)

REFERENCES: (a) USIB-D-39.7/1, 24 July 1961
(b) USIB-D-39.7/3, 23 February 1962
(c) USIB-M-202, 23 February 1962

1. This is a report on Stage I of the Community Information Processing Study which was undertaken by CODIB pursuant to USIB direction contained in Reference (c). The original terms of reference were set forth in Reference (a) and modified and reduced in scope in Reference (b), which constitutes the Stage I plan for this study, completion of which is now reported.

2. The directive to the Staff called essentially for doing four things:

a. To inventory intelligence information holdings;

b. To measure the flow of information between intelligence activities;

c. To recommend format and indexing specifications, particularly as required by automated systems;

GROUP I
Excluded from automatic downgrading and declassification

d. To recommend what further study should be made in the information processing area (defined as the portion of the intelligence cycle between the collection of information and the production of intelligence therefrom).

3. The SCIPS Report does include an inventory of intelligence information holdings (or files) in a large part of the Intelligence Community; and it identifies and has measured the flow of information between the many components surveyed. The study effort did not yield the hoped-for specifications, because present automated systems are generally not developed to a level where input requirements are determinable. Recommendations are made concerning what to do next.

4. Our plan of presentation in this paper is first, to comment on the study effort itself, since this is necessary to an understanding of what the Report is and is not; second, to summarize the major SCIPS findings, giving cross-references to the relevant portions of the SCIPS Report; third, to present our own (i.e., CODIB's) recommendations for USIB action.

COMMENTS ON THE STUDY EFFORT

5. The SCIPS Report consists of six volumes and its sheer bulk and various classifications preclude its submission as a single unit. Volume I, which contains the Summary, Conclusions, and Recommendations as well as a Table of Contents for all volumes, is attached hereto as Tab A. The remaining volumes are being forwarded separately to the USIB member agencies. A selection of 17 of 193

charts from the body of the report is also attached as Tab B. /To minimize possible misinterpretation of the charts, they should be studied together with the text of Volume II, of which they are a part./

6. In spite of the necessary curtailment of the scope of the survey as originally conceived, the results represent the most comprehensive fact-finding study of this kind that has yet been undertaken in the Intelligence Community, covering an estimated 50% - 60% of the Community's information processing activities. The extensive data base that has been created will continue for some time to yield information of considerable value to the individual participating agencies as well as to the community as a whole. This data base consists of the Stage I Report itself and, in addition, exhibits, survey forms, punched cards, magnetic tape files, tally sheets, and machine listings. The machined portion contains statistical information on the kinds and quantities of people, equipment, files, processes, documents and document movement in the Intelligence Community. The analysis contained in the SCIPS report, although appreciable, has not by any means exhausted the potential of the data.

7 [redacted] 25X1

25X1 in the total processing system [redacted] were covered in the Stage I study. Of this

25X1 number, [redacted] were surveyed on site by members of the SCIPS Staff who had themselves participated in the formulation of the intricate and detailed survey system described in the report. These surveyors, on detail from the various

USIB agencies, were almost all experienced intelligence officers in the senior grades, some of them with extensive backgrounds in the area of information processing, but virtually none with previous experience in this type of systems study. Another 10 components were surveyed by SCIPS personnel from existing documents and the 10 remaining were surveyed on site by personnel provided by the component being studied. The average size of the SCIPS Staff during

25X1 [redacted] participated in the Study for varying periods of time. [redacted] 25X1

25X1 [redacted]

8. Some conception of the magnitude of the SCIPS effort may be obtained by citing a few statistics from the report. [redacted] units were 25X1 identified as sending or receiving intelligence items. In size these might vary

25X1 [redacted] About

25X1 [redacted] were recorded in the components surveyed. The SCIPS Data

25X1 Base identified [redacted] individual intelligence items, primarily document or publication series, such as the NIE, the Air Force Information Report, or PRAVDA. Of the total, [redacted] publications field. 25X1 It is estimated that there are annually about 7 million issues of various intelligence items which are produced in about 150 million copies. More than 1000 files of great diversity in composition and varying in size from under 100 to over 9,000,000 records were identified in the activities studied. It is

estimated that there are 220 million unit records in the central reference files of the community (excluding analyst, management, archival files and the like) and that the present net growth of these files is at the rate of 30 million unit records per year - a doubling in seven years. Of the total number of unit records , about 35% or 78 million are in files using some degree of mechanization; about half of these consist of punched card indexes to hard copy document files. Not counting oral responses, the components surveyed service over one million requests per year for documents or other file outputs, only 25% of which are levied directly from elements external to the organizations maintaining the files.

9. In order to obtain the benefits of an objective and independent analysis of the results of the Stage I study, a panel of outside experts in related fields was convened to review the data base and the findings over a period of five days. The following served in this capacity:

Mr. Willard R. Fazar, Bureau of the Budget

[redacted] 25X1

Dr. John H. Kennedy, Weapons Systems Evaluation Group

In addition, Dr. William O. Baker, Vice President (Research), Bell Laboratories, and a member of the President's Foreign Intelligence Advisory Board, spent a day at SCIPS headquarters while the panel was in session. The report of the panel has been considered by CCDIB in reaching its conclusions and is attached as Tab C for information.

10. The members of CODIB, members of the SCIPS Staff, and others spent two days at [redacted] for the purpose of reviewing the report and its findings. The group was unanimous in concluding that the SCIPS Staff, and in particular its director, [redacted] should be commended for a useful job well done. 25X1 25X1

11. A word should be said about the factual data reported and the conclusions reached by SCIPS. In the main, the information may be considered one year old, though it varies in age from 8 to 24 months. However, since processing procedures change more slowly than organizations or subject interests, it is believed that these data will remain valid and useful for some time even if not updated. It should further be noted that not all conclusions reached by SCIPS were derived directly from the factual data alone. Some conclusions were reached as a result of the broad experience acquired by the Staff during their long and intensive exposure to the survey's environment, supplemented by a high degree of expertise in this field that some of them already possessed. Conclusions so reached may be no less valid or valuable, but the reader should know that judgment as well as fact played parts in their formulation.

12. One further note. The study consists, virtually, of a picture of considerable size of files and flows. By its terms of reference it did not study the analyst - the user of these files and the recipient of these flows. Hence, some of the dynamics of the situation are missing. We know a good deal about what goes on, but little about why.

SELECTED FINDINGS AND CONCLUSIONS OF THE SCIPS EFFORT

13. The SCIPS effort was, first of all, a pioneering venture to determine whether such a comprehensive and complex investigation was in fact feasible. It was launched with few precedents for guidance and carried out on the basis of curtailed terms of reference and with limited manpower. Nevertheless, the first conclusion of this report, and perhaps the most significant one, is that the SCIPS effort has indeed demonstrated that such a study is feasible. It has succeeded in developing a highly useful methodology for gathering, collating and evaluating a great mass of valuable data on information processing for the use of management at various levels of the community.

14. The "findings" which are contained in Volumes II and VI of the SCIPS Report, and summarized in Volume I, attached hereto, constitute the main product of this survey. Given below, in very abbreviated form, is a selection of some of the major broad findings and conclusions of the report as well as a few selected problems which hold promise for special study.

Selected Findings

a. Systems

(1) The present USIB "systems" are strongly oriented to method of collection of information. There is, however, an apparent absence of an effective information correlation capability

across sources (human observation, photography, SIGINT, etc.). (See Section I, A, 1, Vol. I)

(2) Because of the number, size, organization and orientation of existing files, it may often be more expeditious to reacquire a specific item of information from the field than to determine that it has already been acquired, where it has been filed, and to retrieve it therefrom. (See Section I, A, 1, Vol. I)

(3) The information holdings of the community generally appear to be deficient in their capability to make available the results of individual analysis of reports or items of information. There is not sufficient motivation for analyst input (feedback) into the data base nor is such input facilitated. (See Section I, B, 7, b, Vol. I)

b. Information Control

(1) The present system fails to exercise significant content control coding early enough in the processing cycle to permit effective filter operations and thus to prevent the movement of large quantities of redundant information throughout the successive processing levels of the community. (See Section I, A, 2, Vol. I)

(2) There is a proliferation of copies of items of information at all levels for local use, and for lateral and onward distribution

with or without analysis. Because of the tendency for the source identification to become progressively obscured during the processing cycle, the consumer may receive both raw and processed information without knowing that they both emanate from the same original source. (See Section I, A, 2, Vol. I)

c. Information Exchange

(1) In the area of information exchange within the Community, there is an apparent tendency for all elements to attempt to acquire everything in order to be reasonably sure of obtaining what is actually needed. In view of the size, variety, and dispersion of the items and files identified in this study, it is doubtful that, even under the present policy of "full exchange of information", an ahalyst can in fact be held responsible for considering all pertinent available information. (See Section I, B, 1, Vol. I).

(2) On the other hand, the study of item-flow in the community does not support the view that all or most elements are now getting everything, whatever their intent; on the contrary, the danger exists that items are missed by those who should have them. (See Section I, B, 5, Vol. I)

d. Indexing and Item Identification

There does not exist at present a single set of indexing tools which would seem to fill a majority of the community's needs. (See Section I, B, 2, Vol. I)

e. Report Formatting

Survey results on the status of report formatting requirements for automatic input were essentially negative. The present state-of-the-art in Information Processing does not permit automatic input except to a very limited degree and the present systems are generally not developed to a level where requirements for such inputs are determinable. (See Section I, B, 3, Vol. I)

f. Systems Integration

The most pressing problems of systems integration or interface appear to be between components within agencies rather than between agencies. (See Section I, B, 4, Vol. I)

g. The State-of-the-Art

A state-of-the-art survey was not made in Stage I. However, many computer applications were observed and the SCIPS data base itself constituted an actual application from which valuable experience was obtained. The report raises doubts whether the present general-purpose computers will ever

solve the bulk information processing problems of the substantive intelligence community and yet points out that the use of ADP remains one of the few hopes for real progress. The present computers are generally successful when used for highly structured and circumscribed processing of specific problems but may not offer much promise as a base upon which to build an entire information processing system. (See Section I, B, 4 and 7 and Section II, A, Vol. I).

Major Conclusions

h. Content Control Coding

In order to improve our ability to deliver potentially significant information in forms useful for exploitation and to allocate limited exploitation resources, there are needed immediate system-wide adjustments leading to sufficient information content control coding to provide for adequate cross-source correlation. Content control coding must be applied at a point where items of information are being put into comprehensible report form but before great numbers of copies have been released. This means that this control and filtering must be introduced at an early stage in processing and must apply to

information obtained from all forms of intelligence collection. Such a uniform system of shallow content control coding, applied early enough in the processing cycle would permit identification and elimination of redundant reporting and thus provide more specific information support than is supplied by the present dissemination system. (See Sections I, A, 1 and 2 and I, B, 1 and 2, Volume I)

i. Standard Item Identification System

There is need for instituting a standard method for identifying information items throughout the community in order to provide for more efficient management of flow, processing, and filing. A standard item identification system combined with a standard coding system would constitute a significant first step in inter-system compatibility and data exchange on a community scale. (See Section I, B, 2, Volume I)

j. System Identification

There is evident a great need to develop in detail the specifications of the intelligence information processing problems to be solved as a basis for applied research and systems engineering directed at entirely new EDP solutions. The SCIPS Field Survey System is the best tool developed so far which might provide

adequate system identification for this purpose. (See Section I, B.4, Volume I)

Selected Special Problems

k. In the course of their broad systems studies, SCIPS also undertook certain vertical analyses on a problem basis in special areas that seemed to offer fruitful opportunities for improved operations. Among these were foreign publications, biographic reporting, and photographic interpretation. For example, they have pointed to significant advantages that would accrue from the establishment of a central bibliographic reference system for foreign publications, while leaving exploitation in this field on a decentralized basis as at present. In the biographic field mutual sharing of certain types of information and processing techniques might prove to be profitable. Photographic intelligence is cited as an activity which would lend itself to standardization of report forms and of selected procedures throughout the community. (See Appendix F, Volume II; Section III, B.5, Volume II; and Appendix H, Volume VI)

RELATION OF SCIPS FINDINGS TO CURRENT UNDERTAKINGS

15. There remains the need to ascertain what impact the present findings should have upon steps recently taken by the Intelligence Community to accelerate the search for solutions to critical information processing problems.

16. In his report* to the Special Assistant to the President for National Security Affairs, the DCI on 9 September stated that USIB would:

"a. Consider the feasibility of establishing a national service of common concern to centrally index all documents now being processed on a decentralized basis. The index data so developed would be available to all the members of the Community.

"b. Consider organizing a small permanent group of technical experts from within the Community whose sole responsibility would be to concentrate on technical information processing problems in the Community.

Further, that the "USIB will undertake to accelerate external research in perfecting the art of processing language automatically."

17. The SCIPS Report is not directly responsive to the question of a central documents indexing activity, but such findings as do relate to this question suggest

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* See: CODIB-D-107/4, 16 Sept 63, paras. 6 and 7
CODIB-D-56/1, 14 Oct 63
CODIB-D-107/5, 18 Oct 63

that other problems may be more pressing (e.g., biographic intelligence, and open publications referred to on page 13 above). Action on this matter should therefore continue to be deferred.

18. The proposal to organize a small permanent group of technical experts from within the Community is similar to the SCIPS recommendation that either a Systems Coordination Staff or a Community Operations Research Center be created. What needs yet to be determined is what each USIB member agency would wish such an organization to accomplish that could not be accomplished without creating new machinery. Hence CODIB is again suggesting deferral of this matter until the SCIPS Report has been thoroughly analyzed by each agency.

19. As to steps taken to accelerate research in the art of processing language automatically, General Carter awaits a reply to his letter of 17 October to [redacted] 25X1

25X1 [redacted] for his views on how best to proceed inasmuch as this matter is of concern to the entire Government.

20. In any event, the SCIPS Report underlines a fact recognized by USIB in authorizing the study; namely, that USIB will in the future find it necessary to devote more attention to the information processing portion of the intelligence cycle than has hitherto been the case.

RECOMMENDATIONS

It is recommended that USIB

1. Note the general findings and conclusions of the SCIPS Stage I Study;

2. Request the several member agencies to study the detailed findings as set forth in the six volumes of the report, plus the SCIPS data base, with a view to relating these findings to their own processing problems;

3. Direct CODIB to proceed with a more detailed examination of the results of the study for the purpose of developing proposals for specific coordinated community action in those areas most likely to yield early dividends in terms of better management and increased efficiency of operation;

4. Direct CODIB to continue the Director, SCIPS, and a small staff (CIA-2; DIA-2) on duty (1) to provide referral service from the SCIPS Data Base; and (2) to prepare for CODIB consideration additional guidelines for the further development and implementation of procedures for improving information processing in the intelligence community;

5. Authorize the release of this CODIB Report to Mr. Bundy for information and as indication of actions taken to date relevant to Intelligence Objective No. 3 of his letter of 17 June 1963; and

6. Authorize the release of this CODIB Report and the SCIPS Report to the President's Foreign Intelligence Advisory Board, pursuant to Mr. Coyne's request therefor of 9 October 1963.

Paul A. Borel
Chairman